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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,778	10/29/2001	Paul J. McClellan	10011945-1	5359

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

BONZO, BRYCE P

ART UNIT	PAPER NUMBER
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2114

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,778

Applicant(s)

MCCLELLAN ET AL.

Examiner

Bryce P Bonzo

Art Unit

2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-11,13-20 and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8,17 and 26 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,9-11,13-16,18-20,22-25 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing-sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL OFFICIAL ACTION

Status of the Claims

Claims 1-7, 9-16, 18-25 and 27 are rejected under 35 USC §102.

Claims 8, 17 and 26 are allowed.

Rejections under 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5-7, 9-11, 14-16, 18-20, 23-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobson (United States Patent No. 5,696,934).

1. A computing system comprising:

data storage, the data storage including (Abstract):

a plurality of storage segments, the plurality of storage segments having different data protection levels (Figures 1 and ; column 7, lines 12-25- each of the disclosed array types has different level of protection);

wherein data are stored in the plurality of storage segments based on data reliability requirements so that data with lower data reliability requirements are stored in a storage segment having a lower data protection level, and data with

higher data reliability requirements are stored in a storage segment having a higher data protection level (column 6, lines 63 through column 7, lines 11);

wherein with every storage segment redundant data is stored (Figures 1 and 2 shows redundancy of different types in both the RAID 1 and RAID 5);

wherein the data protection levels are achieved using varying percentages of redundant data being stored with the data (column 7, lines 12-25 discloses the use of two different redundancy schemes; column 10, lines 28-41 describe the storage differences of the schemes).

2. A computing system as in claim 1 wherein data reliability requirements for the data are determined based on resulting semantic degradation resulting from errors in the data (column 7, lines 12-25: describes storing based on importance, which is another way to describe storing based on what happens if the data is corrupted).

5. A computing system as in claim 1 wherein different data protection levels use different storage areas within a single storage medium (column 7, lines 58-64: spare area on a disk can be used for the other type of RAID).

6. A computing system as in claim 1 wherein different data protection levels are additionally achieved using different types of storage media (column 3, lines 53-67; column 3, line 48: these are heterogeneous media; column 9, line 9: heterogeneous single volume).

7. A computing system as in claim 1 wherein for each data field a segmentation datum is stored indicating in which data segment the data field is stored (column 4, lines 48 through column 5, line 9).

9. A computing system as in claim 1 wherein for each data field to be stored, an associated field sensitivity level indicates data reliability requirements for the data field (column 6, line 63 through column 7, lines 11: this must be stored in the memory map to perform the passing of the reference to where to store the data).

Claims 10, 11, 14-16 and 18 are the data storage embodiment with controller of claims 1, 2, 5-7 and 9 and are rejected accordingly.

Claims 19, 20, 23-25 and 27 are the method of storing data embodiment of claims 1, 2, 5-7 and 9, and are rejected accordingly.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4, 13 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by McConnell (United States Patent No. 6,216,248).

As per claim 4, McConnell discloses:

data storage, the data storage including (Abstract):

a plurality of storage segments, the plurality of storage segments having different data protection levels (column 3, lines 14-17);

wherein data are stored in the plurality of storage segments based on data reliability requirements so that data with lower data reliability requirements are stored in a storage segment having a lower data protection level (column 3, lines 18-20), and data with higher data reliability requirements are stored in a storage segment having a higher data protection level (column 3, lines 21-24); and,

wherein different data protection levels are achieved by implementing storage segments with different data protection levels using different types of storage media (column 2, lines 14-17).

Claim 13 is the data storage embodiment with controller of claim 4 and is rejected accordingly.

Claim 22 is the method for storing data embodiment of claim 4, and is rejected accordingly

Allowable Matter

Claims 8, 17 and 26 are allowed.

Response to Applicant Arguments

I. Claims 1, 10 and 19

Applicant has added every to these claims and thus the scope of the claims has changed. Prior to Amendment it was never explicitly recited that every segment is required to hold redundant data. As such a new rejection under 35 USC §102(b) has been provided.

II. Claims 4, 13 and 22

McConnell in addition to the first embodiment discloses two variation which incorporate the first embodiment (column 6, lines 1-29), each having different levels of redundancy. These two embodiments has two memory regions. This in combination with column 2, lines 14-17 which teaches multiple types of memory to implemented in the device, yields Applicant's claimed invention, when combined. As McConnell clearly enables any type of memory, and discloses two different memory regions, the Examiner can reasonably elect to implement one region in as highly unreliable DRM, with the other being highly reliable EEPROM. The Examiner further points out that one of the factors which goes into designing a memory system is the reliability of the memory used.

Final Disposition

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryce P Bonzo whose telephone number is (571)272-3655. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2114

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Bryce P Bonzo
Examiner
Art Unit 2114